Kaleidoscope

Create artistic patterns and learn about reflection.

Kit contains:

- Toilet paper roll
- Mirrored cardstock
- Circle template
- Mirror template
- Skewer

You will need: something to poke a hole with (like a nail or sharp pencil), tape, and coloring supplies.

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INSTRUCTIONS

(1) Cut out the mirror template. Trace it on the mirrored cardstock, making sure to mark the dotted lines.

(2) Cut out the rectangle on the mirrored cardstock. Fold on the dotted lines with the mirror on the inside. Tape the open ends together as shown.

(3) Slide the triangular shaped mirror into the toilet paper roll. If it doesn't fit snugly, use a bit of tape to hold in place.

(4) Tape the skewer to the side of the tube, leaving about half hanging off the end.

(5) Cut out circle templates and decorate. Lots of colors and patterns will work best.

(6) Poke a hole in the middle of each circle. Slide one of the circles on to the skewer with the colored part facing the toilet paper tube.

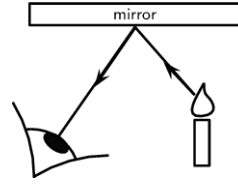
(7) Hold your kaleidoscope up to the light and look into the open end of the tube.

Spin the circle. Watch the patterns and colors reflect and change in the mirrors!

Now try it out with your other circles!

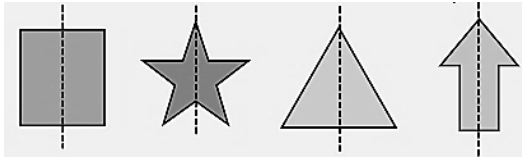
WHAT'S GOING ON?

The mirrors are creating **reflections**. Reflection happens when the light rays from an image bounce off a shiny surface back into our eyes. Since your kaleidoscope has three mirrors, reflection is happening from three directions.



ANOTHER STEM CONNECTION...

Your kaleidoscope also uses **symmetry**. The image reflected in each mirror is symmetrical to the original image on the surface. That means the image is the same on both sides, just reversed.



(Source: https://intl.siyavula.com/read/science/grade-8/visible-light/12-visible-light?id=toc-id-6)

BOOKS TO LEARN MORE

- *Kaleidoscope* by Salina Yoon
- *Light Waves* by David Adler
- *Seeing Symmetry* by Loreen Leedy